

Sheet 8

CBP time Management



Two teaching assistant A, P

Do five tasks (variables) F, H, P, S, T

For each Teaching assistant have 4 time slot

1) Size of the space

4 time slot for each teacher then

we have 8 time slots for 5 tasks

$$\therefore \text{space} = 8^5 \rightarrow \text{task}$$

2) Unary constraint

d, e, i, j

3)

F	H	P	S	T
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A1 ✓

A1 ✓

A1 ✓

A1 ✓

A1 ✓

A2 ✓

A2 ✓

A2 ✓

A2 ✓

A2 ✓

A3 ✓

A3 ✓

A3 ✓

A3

A3 ✓

A4 ✓

A4

A4 ✓

A4

A4

P1

P1 ✓

P1 ✓

P1 ✓

P1 ✓

P2

P2 ✓

P2 ✓

P2 ✓

P2 ✓

P3

P3 ✓

P3 ✓

P3

P3 ✓

P4

P4

P4 ✓

P4

P4

After Enforce all unary constraint

4) select S as A2 and force forward checking

	E	H	P	S	T
A1	(A1)		A1		
A2				(A2)	
A3		A3	(A3)		
A4			A4		
P1			P1		
P2					
P3		P3	P3		P3
P4			P4		

5) Based on Minimum Remaining values (MRV)
(breaking alphabetically)

F Minimum Remaining Values

6) Assigning variable in (5) the perform forward checking

	E	H	P	S	T
✓ A1	A1	(A1)	A1	A1	A1
✓ A2	A2	A2	A2	A2✓	A2
✓ A3	A3✓	A3✓	A3✓	A3	A3
A4	A4	A4✓	A4✓	A4	A4
P1	P1	P1✓	P1✓	P1	P1
P2	P2	P2	P2	P2	P2✓
P3	P3✓	P3✓	P3✓	P3	P3✓
P4	P4	P4✓	P4✓	P4	P4

7) select S to A2 enforce consistency and check remaining

E	H	P	S	T
1				
A1 ✓	A1	A1	A1	A1
A2	A2	A2	A2 ✓	A2
A3	A3 ✓	A3	A3	A3
A4	A4	A4	A4	A4
P1	P1	P1 ✓	P1	P1
P2	P2	P2	P2	P2
P3	P3	P3	P3	P3 ✓
P4	P4	P4	P4	P4

8)

Arc Consistency Removes more values than forward checking because ^{arc} consistency checks consistency between any pair of variables, while forward checking only checks relation between pairs of assigned and unassigned variables